

State of the Environment Report
Indicators - DRAFT LIST
16 July 02

After looking at the comments provided by the panel of experts regarding data quality of the potential indicators, the theme workgroups placed the potential indicators into 3 categories: Type I, Type II, and Type III based on indicator development and supporting data.

Type I Indicators: Adequate data are available on a national basis, the underlying monitoring or sampling design permits making inferences and the data can be used to support the development of the indicator. These data are generated by ongoing, systematic monitoring or data collection efforts.

Type II Indicators: Full or partial data are available, but either a complete cycle has not been collected, these data are not available at a national scale, the underlying monitoring design does not permit making inferences, or a quantitative estimate of condition can not be made.

Type III Indicators: No ongoing monitoring and/or data collection is in place to provide data for these indicators. At the present time, these indicators are considered conceptual or are in a research phase. Type III indicators are useful in revealing gaps that may need to be filled in order to provide quantitative information.

THEME: ECOLOGICAL CONDITION

What is the overall ecological condition of the United States?

Land Cover and Land Use	(NRC)	III
Total Species Diversity	(NRC)	III
Native Species Diversity	(NRC)	III
Productivity	(NRC)	III
Bird Community Index		II

What is the extent and condition of ecosystems in the United States?

What is the condition of Estuaries?

Submerged Aquatic Vegetation	II
Benthic Index of Biotic Integrity	II

What is the condition of Fresh Waters?

Fish Index of Biotic Integrity	II
Benthic Index of Biotic Integrity	II
Periphyton Index of Biotic Integrity	II

What is the condition of Forests?

Lichen Community Index	II
Crown Condition	II
Tree Species Richness	II
Forest Pattern and Fragmentation (Heinz)	III

What is the condition of Grasslands / Shrublands?

Area and Size of Grasslands/Shrublands Patches	III
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What is the condition of Agroecosystems?

No Indicators Recommended

What is the condition of Urban Ecosystems?

Patches of Forest, Grassland/Shrublands And Wetlands	III
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What are pressures on Ecological Condition?

Specific pressures, pollutants and stressors that may effect ecological condition are further discussed in subsequent chapters.

THEME: HUMAN HEALTH*

What is the Condition of Human Health in the United States?

Cancer Mortality	I
Infant Mortality	I
Low Birth Weight	I
Birth Defects	I
Longevity	I

What are trends in Mortality and Morbidity in the United States?

Cardiovascular Disease	I
Chronic Obstructive Pulmonary Disease	I
Infectious Disease Prevalence	II
Asthma Mortality	I
Childhood Cancer Deaths	I
Diabetes Mortality	I
Asthma Incidence	III
Renal Disease Mortality	I

What is the Body Burden for Environmental Pollutants?

Body Burden of Priority Chemicals	I
Blood Lead Level/Blood Lead Disease	I
Blood Mercury Level	I
Blood Cadmium Level	I
Urine Dimethylphosphate Level	II
Blood Cotinine Level	I
Blood Perchloroethylene Level	III
Urine Arsenic Level	I

What are Sources and Levels of Exposure to Environmental Pollutants?

Specific sources and ambient levels of environmental pollutants are further discussed in subsequent chapters.

What Diseases are Thought to be Related to Environmental Pollution?

Chronic Diseases	III
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Infectious Diseases
Children's Issues

III
II

For Which Chemicals is there Evidence for Association with Adverse Human Health?

Pesticides
Persistent Organic Pollutants
Volatile Organic Chemicals
Environmental Tobacco Smoke

III
III
III
II

THEME: AIR

Outdoor Air Quality in the United States

What is the quality of the outdoor Air in the United States?

Number of People Living in Areas with Air	I
Quality Levels Above the NAAQS	
Ambient Concentrations of Particulate Matter (PM 2.5)	I
Ambient Concentrations of Particulate Matter (PM 10)	I
Ozone: Number of People Living in Areas with Air	I
Quality Levels Above the NAAQS	
Ambient Concentrations of Ozone 8-hour	I
Ambient Concentrations of Ozone 1-hour	I
Ambient Concentrations of Lead	I
Ambient Concentrations of Selected Air Toxics	II
Visibility	II

What are the contributors to pollutants in air?

Particulate Matter Emissions (PM 2.5)	II
Particulate Matter Emissions (PM 10)	II
Sulfur Dioxide Emissions	II
Nitrogen Dioxide Emissions	II
Lead Emissions	II
Volatile Organic Compound Emissions	II
Air Toxic Emissions	II

What are the Health Effects Associated With Poor Air Quality?

Health effects associated with poor air quality are discussed further in the Health Chapter.

What are the Ecological Effects associated with Air Pollution?

Ecological effects associated with air pollution are further discussed in the Ecological Condition Chapter

Indoor Air Quality

What is the quality of the air in the nation's buildings?

There are no indicators that allow us to make national statements about the quality of indoor air.

**Percentage of Homes Where Young Children
are Exposed to ETS** II

Radon II

What are the human health effects of poor indoor air quality?

Indicators Linkages to Subsequent Chapters

Stratospheric Ozone

What is the Extent and Change to the Earth's Ozone Layer?

Ozone Levels Over North America I

UV Levels Over North America II

What are the changes to production and concentration of Ozone Depleting Substances?

Production of ODS II

Concentrations of ODS Over Time II

What are Human Health effects associated with depleted ozone levels and what are the trends?

Skin Cancers II

Cataracts II

**Human Health effects associated with depleted ozone levels are
further discussed in the Human Health**

Acid Rain

What are the Deposition Rates of Pollutants that Cause Acid Rain?

Wet Acid Deposition II

Dry Acid Deposition II

What are the Emissions of Pollutants that Form Acid Rain?

Sulfur Dioxide Emissions from Utilities II

**Nox Emissions from Electric Power Generation
and Large Boilers** II

What are the ecological impacts associated with Acid deposition?

Climate Change

Is the climate of the Earth changing?

**Combined Annual Land-surface, Air, and Sea Surface
Temperature Anomalies**

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What are the Contributors to Climate Change?

Greenhouse Gas Emissions and Sinks

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Concentrations of CH₄ (1000yrs)

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Concentrations of CO₂ (1000yrs)

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Concentrations of N₂O (1000yrs)

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What are the Effects to Human Health Associated with Climate Change?

**Health effects associated with Climate Change
are discussed further in the Human Health Chapter**

What are the Effects to Ecological Condition Associated with Climate Change?

**Effects to ecological condition associated with Climate
Change are discussed further in the Ecological Condition Chapter.**

THEME: WATER

Water and Watersheds

What is the condition of waters and watersheds in the United States?

Miles/Acres of Rivers and Lakes Meeting State II

Water Quality Standards For Designated Uses

Water withdrawals (Heinz) II

Altered Fresh Water Ecosystems (Heinz) II

Trophic Status (NRC) II

Harmful Algal Blooms (Heinz) II

What are the pressures to water quality?

Percent urban Land cover in II

Riparian Areas

Atmospheric Deposition of Nitrogen II

Atmospheric Deposition of Mercury II

Sediment Runoff I

Pesticide Runoff II

Contaminated Sediment II

Water Withdrawal (Heinz) I

Toxic Releases to Water (TRI) II

Nutrient Runoff (NRC) II

Wetlands

What is the extent and condition of wetlands?

Freshwater Wetland Extent and Change II

Coastal Wetland Extent and Change II

Coastal Waters

What is the condition of Coastal Waters?

Water Clarity I

Dissolved Oxygen I

Sea Surface Temperature (Heinz) II

What are the pressures to Estuarine Waters?

Atmospheric Deposition of Nitrogen	I
Nitrogen Runoff	I
Contaminated Sediment	II
Toxic Releases (TRI)	II
Coastal Eutrophication	II
Watershed export of Nitrogen	II

Drinking Water

What is the Quality of Water Used for Drinking?

Trends in Population Served by Community Water	I
Systems that Meet All Health Based Standards	
Percentage of assessed surface waters that meet	II
Designated Use Standards for Drinking Water	

What are the causes of drinking water contamination?

To be developed

What are the health effects of consuming contaminated drinking water?

Health effects associated with consuming contaminated drinking water are discussed in the Human Health Chapter.

Recreation In and On the Water

What is the Condition of Surface Waters that Support Recreational use?

Number of Beach-Days that Beaches are Open	II
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What are the sources of recreational water pollution?

To be developed

What are the health effects associated with recreation in contaminated waters?

Health effects associated with recreation in contaminated water are discussed in the Human Health Chapter.

Consumption of Fish and Shellfish

What is the condition of surface waters that support fish and shellfish consumption?

Fish Tissue in Coastal Waters	I
River Miles and Lake Acres with Fish Advisories	II
Waters meeting designated use for fish Consumption	II
Shellfish Bed Closures	II
Watersheds exceeding Water Quality Criteria for Hg, PCBs	II

What are the contaminants in fish and shellfish and where do they originate?

To Be Developed

What are the health effects of consuming contaminated fish and shellfish?

Health effects associated with consuming contaminated fish and shellfish are discussed in the Human Health Chapter.

THEME: LAND

Land Use and Land Use Change

How is Land Used and How is it Changing?

Change in Developed Lands	I
Coastal Development	II
Road Density	II
Loss of Farmland	I
Ag and Urban in riparian	II

What is the effect of various landuses?

Soil Biological Condition (Heinz)	II
Wetland loss/change	III
Soil erosion for Agriculture	I

Pesticides and Fertilizers

What is the Volume, Distribution and Extent of Pesticide and Fertilizer Use?

Agricultural Pesticide Use	I
Fertilizer Use	II

What is the potential disposition of Pesticides and Fertilizer Use on Land?

Pesticide Runoff From Farm Fields	II
Watershed Nitrogen and Phosphorous Export	II
Nitrate in Farmland Streams and Groundwater (Heinz)	I
Phosphorous in Farmland Streams (Heinz)	I
Pesticides in Farmland Streams and Groundwater (Heinz)	II

What are the ecological effects of pesticide and fertilizer use on land?

Ecological effects associated with pesticide and fertilizer use on	
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lands will be further discussed in the Ecological Condition Chapter.

Waste

How Much and What Types of Waste are Generated and how has this Changed over Time?

Municipal Solid Waste Characterization II

Radioactive Wastes II

RCRA Info II

What is the quantity and types of toxic releases?

TRI Waste Production II

How Much Land is Contaminated and how has this changed over time?

Hazardous Waste II

Superfund National Priority Sites II

Number and Locations of Leaking Underground Tanks II

Oil, Chemical and Waste Spills III

How much waste is being recycled and minimized?

TRI Waste Recycling II

MSW Recycling II

What are the human health effects associated with Waste and Contaminated Land?

Human health effects associated with waste and contaminated land will be further discussed in the Human Health Chapter.

What are the ecological effects associated with Waste and Contaminated Land?

Ecological effects associated with Waste and Contaminated Lands will be further discussed in the Ecological Condition Chapter.